For eccentricities.

Mercury	·2054925 − ·0000001	$= \frac{217}{1056}$,	or	$\frac{7.31}{32.33}$;
Venus	·0068722 + 07	$= \frac{2}{291}$,	or	$\frac{2}{3.97}$;
Earth	·0167918 − 08	$= \frac{9}{536}$,	or	$\frac{9}{8.67}$;
Mars	·0931125 − 03	$= \frac{73}{784}$,	or	$\frac{73}{28.28}$;
Jupiter	·0481626 − 04	$= \frac{38}{789}$,	or	$\frac{2.19}{3.263}$;
Saturn	·0561502 − 05	$= \frac{21}{374}$,	or	$\frac{21}{17.22}$;
Uranus	·0466683 − 17	$= \frac{7}{150}$,	or	$\frac{7}{10.15}$;
Neptune	·0084962 − 00	$= \frac{10}{1177}$,	or	$\frac{10}{11.107}$.

Nov. 1877.

On the Synodisms of Saturn's Satellites. By S. M. Drach, Esq.

In Mr. Christie's journal, *The Observatory* (No. 7, for last month), Mr. D. Kirkwood deduced from Lovnics' *Astronomy* (by adding $0^s.62$ to period of *Mimas*) this interesting formula of the four innermost moons:

$$5(n_1 - n_2) + (n_3 - n_2) + 4(n_4 - n_2) = 0.$$

In this form I think it may lead to a theory akin to that arising from the relation to *Jupiter's* lunar $n_1 - 3n_3 + 2n_2 = 0$ between the mean motions of *Jupiter's* satellites. Recommended to try later elements for all, I have selected Guillemin's *Heavens* (English translation, 1876). Chambers' *Descriptive Astronomy* only gives the *minutes*; the columns of "days and decimals" could have been better replaced by the *seconds* of time. (*Saturn's* rotation, $10^h\ 29^m\ 17^s$).

		Period. d	h	m	s	In *Sat.* days.	Rev. in *Sat.* year.
I.	M.	0	22	37	23	2·157305	11414·08
II.	E.	1	08	53	07	3·135499	7852·185
III.	Te.	1	21	18	26	4·319888	5699·331
IV.	D.	2	17	41	09	6·262918	3931·155
V.	R.	4	12	25	11	10·33745	2381·678
VI.	Ti.	15	22	41	25	36·48820	675·2189
VII.	H.	22	07	07	41	51·02262	482·5411
VIII.	J.	79	07	54	40	181·5310	135·6271
	⊙		10759^d·22			24625·1	unity

Synodisms in Chronological Order.

Syn.	Terrestrial. d	h	m	s	S. days.	Syn.	Terrestrial. d	h	m	s	S. days.
M.J.	0	22	13	42	2·18	E.R.	3	02	48	41	7·13
M.H.	0	23	37	19	2·23	Te.R.	3	05	49	57	7·42
M.Ti.	1	00	02	40	2·30	D.Ti.	3	07	17	47	7·56
M.R.	1	04	35	18	2·72	E.D.	3	10	54	26	7·91
E.J.	1	09	47	46	3·19	R.J.	4	18	58	17	10·96
M.D.	1	10	30	31	3·29	E.Te.	4	23	56	39	11·44
E.H	1	11	02	19	3·34	R.H.	5	15	58	21	12·97
E.Ti.	1	11	58	37	3·43	Te.D.	6	02	01	37	13·92
M.Te.	1	21	11	07	4·25	R.Ti.	6	10	36	42	14·42
Te.J.	1	22	59	43	4·42	D.R.	6	22	39	03	15·89
Te.H.	2	01	29	53	4·71	Ti.J.	19	22	57	41	45·68
Te.Ti.	2	03	23	29	4·87	H.J.	31	00	20	13	70·88
D.J.	2	20	01	59	6·49	Ti.H.	55	23	25	22	128·12
M.E.	3	00	26	43	6·91						
D.H.	3	02	31	58	7·11						

⊙ 24625·1 *Sat.* days.

Fried. Weis published in 1860 *Gesetze der Satellitenbildung* (Perthes, Gotha, 8vo.). In the Library of the Royal Geographical Society.

Nov. 16, 1877.

On a New Astrophotometrical Method. By Prof. Ch. V. Zenger.

It occurred to me to measure the intensity of the light of planetary disks by the time they take appearing or disappearing in twilight, and I first tried it in April, when *Jupiter* was a morning star.

I was surprised at the beautiful regularity and the order in which the details of the planetary disk vanished, and the accordance of the determined intensity of light as well of the four satellites as of the details on the planetary disk.

It is obvious that the time of appearance and disappearance will be different according to the intrinsic luminosity of celestial objects, and that the object will vanish as soon as the heavenly background acquires by reflected light the same intensity as the observed star.

These observations are so easy, and the vanishing of the light is so obvious, that the method will give, even with untrained yet sufficiently sensitive eyes, good results, and will enable every possessor of a telescope from 2 inches aperture upwards to do with it useful work.